



PATENT  
Customer No. 22,852  
Attorney Docket No. 5638.0018-00

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:	)
Jörg BERNARD <i>et al.</i>	) Group Art Unit: 1761
Application No.: 10/088,602	) Examiner: L. WONG
Filed: August 23, 2002	)
For: HARD CANDY WITH IMPROVED STORAGE STABILITY	) Confirmation No.: 6889

**MAIL STOP AMENDMENT**  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

**DECLARATION UNDER 37 C.F.R. § 1.132**

1. I, Joerg Kowalczyk, am a German citizen, residing at Wormser Straße 11, 67283 Obrigheim/Pfalz, Germany.
2. I graduated in chemistry and was awarded a Ph.D. in polymer chemistry from the Technical University of Braunschweig, Germany.
3. I hold the position of Head of Product Development in the Central Research & Development Department of Südzucker Aktiengesellschaft Mannheim/Ochsenfurt of Germany. During my employment there, I have been engaged in research and development regarding the manufacture and storage of hard candies.

4. I am a co-inventor of application no. 10/088,602, and I am familiar with that application.

5. I understand the rejections made in the Office Action of May 31, 2005, in Application No. 10/088,602, and the references referred to therein.

6. The claimed invention relates to a hard caramel with improved stability in storage and a method for producing the same.

7. I note that the Office Action of May 31, 2005, takes the position that the cited references teach the use of 1,1 GPM and sorbitol in hard caramels and that the different specific amounts employed were a matter of choice and at most mere optimization. I respectfully disagree. The Specification itself, particularly in the Examples, provides evidence that the improved stability of the hard caramels can be observed only if concentrations of 1,1-GPM and sorbitol are employed in the claimed ranges. This function was unexpected, and it has practical significance because the stability of hard caramels influences their marketability.

8. I have performed additional experiments beyond those described in the Specification to show that the claimed concentrations of 1,1-GPM and sorbitol result in hard caramels with improved stability in storage. The experimental data is summarized in Exhibit 1, which contains Examples A, B, and C.

9. In those Examples, I prepared several samples of hard caramels (samples A to N) according to Example 1 of the application under consideration. Samples A, F, H, L, and N (shown in bold in Exhibit 1) were prepared according to the invention.

Samples B, C, D, E, G, I, K, and M were prepared as comparative examples using concentrations of 1,1-GPM or sorbitol outside the claimed ranges.

10. Three experiments were then performed. In example A, samples A, B and C were stored under 70 % relative humidity at 30 °Celsius for 3 months. In example B, samples D to H were stored under 70 % relative humidity at 30 °Celsius for 6 months. In example C, samples I to N were stored under 75 % relative humidity at 30 °Celsius for 3 months. To measure thickness of the microcrystalline layer stored hard caramels were cut in slices of 20 µm thickness by means of a microtome in dry air. Slices were fixed on glass slides. Thickness was then determined by polarisation microscopy and a micrometer eyepiece. The results of those experiments are shown in the tables of Exhibit 1.

11. I note that the thickness of a microcrystalline layer on the surface of a hard caramel is a measure for storage stability. A crystalline layer builds up due to water uptake during storage. The building of crystalline layers or areas is an unwanted phenomenon impairing the quality of the product and its marketability. A hard caramel with a thin crystalline layer is preferable. Such a caramel has improved storage stability over a hard caramel with a thicker crystalline layer, both stored under the same conditions.

12. As shown in the attached Exhibit 1, samples A, F, H, L, and N, which were prepared according to the invention, have noticeably thinner crystalline layers after storage than the samples prepared for the purpose of comparison have. The results



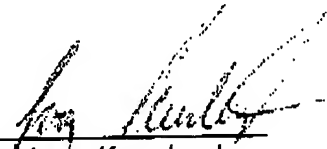
show that the combination of specific concentrations of 1,1-GPM with specific concentrations of sorbitol results in hard caramels have the unexpected advantageous property of thinner crystalline layers that in turn results in improved storage stability. This finding was unexpected. Because these results were unexpected, it was not mere optimization to discover that the combination of specific concentrations of 1,1-GPM with specific concentrations of sorbitol would produce hard caramels with improved storage stability.

13. I further note that from the teaching of *Willibald-Ettle et al.* and *Kunz et al.* a skilled person could not foresee by any means that the selections of specific concentrations of 1,1-GPM and sorbitol in a hard caramel would decrease the tendency of building crystalline layers, thus improving storage stability. The unexpected finding above would not have been obvious from the prior art.

14. I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Dated: November 22nd, 2005

By:

  
Dr. Joerg Kowalczyk

# Exhibit 1



SÜDZUCKER



## Example A

storage conditions: 70% rel. hum. / 30°C; storage time: 3 months

	GPM [% d.m.]	Sorbitol [% d.m.]	GPS [% d.m.]	Thickness of microcrystalline boundary layer [μm]
Sample A	53.3	1.5	40.1	273
Sample B	45.4	1.4	64.1	416
Sample C	49.0	3.6	40.5	419

## Example B:

storage conditions: 70% rel. hum. / 30°C; storage time: 6 months

	GPM [% d.m.]	Sorbitol [% d.m.]	GPS [% d.m.]	Thickness of microcrystalline boundary layer [μm]
Sample D	44.7	3.3	44.4	998
Sample E	49.0	3.6	40.5	727
Sample F	52.8	3.1	37.6	628
Sample G	45.4	1.4	48.2	703
Sample H	53.3	1.5	40.1	437

## Example C:

storage conditions: 75% rel. hum. / 30°; storage time: 3 months

	GPM [% d.m.]	Sorbitol [% d.m.]	GPS [% d.m.]	Thickness of microcrystalline boundary layer [μm]
Sample I	44.7	3.3	44.4	817
Sample K	49.0	3.6	40.5	746
Sample L	52.8	3.1	37.6	644
Sample M	45.4	1.4	48.2	728
Sample N	53.3	1.5	40.1	495